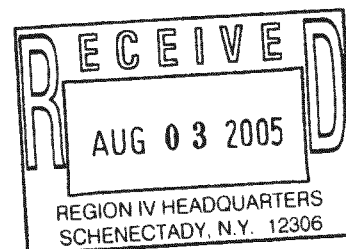


TACONIC

136 Coonbrook Road • P.O. Box 69
Petersburgh, New York 12138
Telephone: 518.658.3202
Fax: 518.658.3204

August 3, 2005

Mr. Frederick Sievers
Regional Water Engineer
New York State Department of Environmental Conservation
Region 4
1150 North Westcott Road
Schenectady, NY 12306-2014



Re: Taconic, Petersburg, NY

Dear Mr. Sievers:

We have recently undertaken voluntary efforts to evaluate the presence and level of perfluorooctanic acid (PFOA) at or near the Taconic facility. Attached please find copies of the laboratory analytical reports related to the presence of this compound in groundwater at or near the facility.

After you have had a chance to look through the enclosed, would you please contact me at your earliest convenience so that we can arrange a meeting to discuss this information? I can be reached at (518) 658-3202 ext. 288.

Sincerely,

A handwritten signature in dark ink, appearing to read "Andrew Kawczak". The signature is fluid and cursive, with the first name "Andrew" and last name "Kawczak" clearly distinguishable.

Andrew Kawczak
Environmental Manager

December 2004



Analytical Report

TACONIC

Analysis of PFOA in Water Samples

Exygen Report No. L0003924

Testing Laboratory

Exygen Research
3058 Research Drive
State College, PA 16801

Requester

Tim Kosto
TACONIC
136 Coonbrook Road
Petersburgh, New York, 12138
Phone: 518-658-3202

See
page 12 +

1 Introduction

Results are reported for the analysis of perfluorooctanoic acid (PFOA) in wastewater samples received at Exygen from Tim Kosto at TACONIC. The Exygen project number assigned to the samples is L0003924. Table I lists the target analytes quantitated for the samples.

Table I. Target Analytes for Quantitation

<u>Parameter</u>	<u>Acronym</u>	<u>Formula</u>
Perfluorooctanoic acid	PFOA	$C_7F_{15}COOH$

2 Sample Receipt

Four samples were received at Exygen in 500 mL clear plastic bottles. A copy of all sample log-in information is presented in Attachment A.

The samples were received on 11/23/04. The samples were shipped on ice via UPS. The samples were stored refrigerated from time of receipt until analysis.

3 Methods - Analytical and Preparatory

3.1 Sample Preparation

Solid phase extraction (SPE) was used to prepare the samples for LC/MS/MS analysis. A forty milliliter portion of each sample was transferred to a C_{18} SPE cartridge. The cartridge was eluted with 5 mL of 100% methanol. This treatment resulted in an eight-fold concentration of the samples prior to analysis. A portion of the extract was transferred to autosampler vials and analyzed using electrospray LC/MS/MS.

3.2 Sample Analysis by LC/MS/MS

In High Pressure Liquid Chromatography (HPLC), an aliquot of extract is injected and passed through a liquid-phase chromatographic column. Based on the affinity of the analyte for the stationary phase in the column relative to the liquid mobile phase, the analyte is retained for a characteristic amount of time. Following HPLC separation, mass spectrometry provides a rapid and accurate means for analyzing a wide range of organic compounds. Molecules are ionized, fragmented, and detected. The ions characteristic of the compounds are observed and quantitated against extracted standards.

An HP1100 system interfaced to a Micromass Quattro system was used to analyze the sample extracts for quantitation. A gradient elution through a Jones Chromatography Genesis C-8 50 x 2.1 mm x 4µm column was used for separation.

The following gradient was performed:

Mobile Phase (A): 2mM Ammonium Acetate in Water
Mobile Phase (B): Methanol

<u>Time</u>	<u>%A</u>	<u>%B</u>
0.0	60	40
0.4	60	40
1.0	10	90
7.0	10	90
7.5	0	100
9.0	0	100
9.5	60	40
13.5	60	40
14.0	60	40

The following parameters were used for operation of the mass spectrometer:

<u>Parameter</u>	<u>Setting</u>
Ionization Mode	Electrospray
Polarity	Negative
Transitions Monitored	413->369 (PFOA)
Gas Temperature	350°C
Drying Gas (N2)	7.0 L/min

4 Analysis

4.1 Calibration

A 7-point calibration curve was analyzed throughout the analytical sequence for PFOA. The calibration points were prepared at 0, 25, 50, 100, 250, 500, and 1000 ng/L (ppt) for LC/MS/MS analysis. Calibration standards are prepared using the same SPE procedure used for samples. The instrument response versus the concentration was plotted for each point. Using linear regression with 1/x weighting, the slope, y-intercept and coefficient of determination (r^2) were determined. A calibration curve is acceptable if $r^2 \geq 0.985$.

For the results reported here, calibration criteria were met. The calibration curves are included in the raw data in Attachment C.

4.2 Surrogates

Surrogates were not used in this study.

4.3 Laboratory Control Spikes

Laboratory control spikes in the analytical set were prepared by adding a known concentration of the analyte to laboratory water. Laboratory control spikes are used to assess method accuracy. The laboratory control spikes must show recoveries between 70-130% or the data is rejected. For the results reported here, the laboratory control spikes were within the acceptable range.

4.4 Matrix Spikes

A matrix spike was prepared for each sample in the analytical set by adding a known concentration of the target analyte to a separate sample. Matrix spikes are used to assess method accuracy in the matrix. The matrix spikes should show recoveries between 70-130%. For the results reported here the matrix spike for 04-10-03A,B was within the acceptable range. For the other three samples, 04-10-01A,B, 04-10-02A,B and 04-10-04, the amount of PFOA found in the sample greatly exceeded the spiking level and an accurate recovery could not be calculated.

4.5 Sample Related Comments

Each sample was extracted in duplicate and analyzed. Duplicate sample results are reported along with the sample results in Attachment B.

5 Data Summary

Please see Attachment B for a detailed listing of the analytical results. Results are reported in parts per billion (ng/mL) for the analyte, PFOA, on an as-received basis.

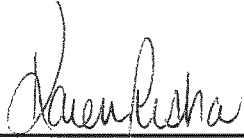
6 Data/Sample Retention

Samples are disposed of one month after the report is issued unless otherwise specified. All electronic data is archived on retrievable media and hard copy reports are stored in data folders maintained by Exygen. Hardcopy data is stored for a minimum of five years. The client will be notified 30 days prior to the disposal of hardcopy data.

7 Attachments

- 7.1 Attachment A: Chain of Custody
- 7.2 Attachment B: Analytical Results
- 7.3 Attachment C: Raw Analytical Data

8 Signatures



Karen Risha, Principal Investigator

12/21/04

Date



John M. Flaherty, Vice President

12/21/04

Date

11/18/04

Additional Samples for PFCA testing and Extern:

04-10-01A
B

> Bldg 4 Dispersion Area Well

04-10-02A
B

> Bldg 4 Drinking Water

04-10-03

A
B

> Bldg 6 Drinking Water

04-10-04

PFCA Control

0.0767 g

PFCA Allack 90% Lot 17429413

102.67 g

Distilled Water

1.1219 g FC-118

111.67 g

FC-118 + Distilled Water

2.10 g

119.04 g

Total, including water

92.3 g

96.41 g

Total including water

All

415.2 g water

2.11622 g

FC-118

Diluted

1:100

538.8 g

Distilled water

Summary of PFOA in Water Samples

Sample ID	Analyte Found ppb (ng/mL)	
	PFOA	
04-10-01A,B	117	} Bldg #4 dispersion well (AKA well #2)
04-10-01A,B*	116	
04-10-02A,B	152	} Bldg #2 well (AKA well #1)
04-10-02A,B*	148	
04-10-03A,B	2.30	} Bldg #6 well (AKA well #3)
04-10-03A,B*	2.07	
04-10-04	13700	
04-10-04*	14100	

*Laboratory Duplicate

January 2005

Analytical Report

TACONIC

Analysis of PFOA in Water Samples

Oxygen Report No. L0004258

Testing Laboratory

Oxygen Research
3058 Research Drive
State College, PA 16801

Requester

Tim Kosto
TACONIC
136 Coonbrook Road
Petersburgh, New York, 12138
Phone: 518-658-3202

see page 11 +

1 Introduction

Results are reported for the analysis of perfluorooctanoic acid (PFOA) in water samples received at Exygen from Tim Kosto at TACONIC. The Exygen project number assigned to the samples is L0004258. Table I lists the target analytes quantitated for the samples.

Table I. Target Analytes for Quantitation

<u>Parameter</u>	<u>Acronym</u>	<u>Formula</u>
Perfluorooctanoic acid	PFOA	C ₇ F ₁₅ COOH

2 Sample Receipt

Five samples were received at Exygen in 500 mL clear plastic bottles. A copy of all sample log-in information is presented in Attachment A.

The samples were received on 01/14/05. The samples were shipped on ice via UPS. The samples were stored refrigerated from time of receipt until analysis.

3 Methods - Analytical and Preparatory

3.1 Sample Preparation

Solid phase extraction (SPE) was used to prepare the samples for LC/MS/MS analysis. A forty milliliter portion of each sample was transferred to a C₁₈ SPE cartridge. The cartridge was eluted with 5 mL of 100% methanol. This treatment resulted in an eight-fold concentration of the samples prior to analysis. A portion of the extract was transferred to autosampler vials and analyzed using electrospray LC/MS/MS.

3.2 Sample Analysis by LC/MS/MS

In High Pressure Liquid Chromatography (HPLC), an aliquot of extract is injected and passed through a liquid-phase chromatographic column. Based on the affinity of the analyte for the stationary phase in the column relative to the liquid mobile phase, the analyte is retained for a characteristic amount of time. Following HPLC separation, mass spectrometry provides a rapid and accurate means for analyzing a wide range of organic compounds. Molecules are ionized, fragmented, and detected. The ions characteristic of the compounds are observed and quantitated against extracted standards.

An HP1100 system interfaced to a Micromass Quattro system was used to analyze the sample extracts for quantitation. A gradient elution through a Jones Chromatography Genesis C-8 50 x 2.1 mm x 4 μ m column was used for separation:

The following gradient was performed:

Mobile Phase (A):	2mM Ammonium Acetate in Water
Mobile Phase (B):	Methanol

Time	%A	%B
0.0	60	40
0.4	60	40
1.0	10	90
7.0	10	90
7.5	0	100
9.0	0	100
9.5	60	40
13.5	60	40
14.0	60	40

The following parameters were used for operation of the mass spectrometer:

Parameter	Setting
Ionization Mode	Electrospray
Polarity	Negative
Transitions Monitored	413->369 (PFOA)
Gas Temperature	350°C
Drying Gas (N2)	7.0 L/min

4 Analysis

4.1 Calibration

A 7-point calibration curve was analyzed throughout the analytical sequence for PFOA. The calibration points were prepared at 0, 25, 50, 100, 250, 500, and 1000 ng/L (ppt) for LC/MS/MS analysis. Calibration standards are prepared using the same SPE procedure used for samples. The instrument response versus the concentration was plotted for each point. Using linear regression with 1/x weighting, the slope, y-intercept and coefficient of determination (r^2) were determined. A calibration curve is acceptable if $r^2 \geq 0.985$.

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Laboratory control spikes in the analytical set were prepared by adding a known concentration of the analyte to laboratory water. Laboratory control spikes are used to assess method accuracy. The laboratory control spikes must show recoveries between 70-130% or the data is rejected. For the results reported here, the laboratory control spikes were within the acceptable range.

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A matrix spike was prepared for each sample in the analytical set by adding a known concentration of the target analyte to a separate sample. Matrix spikes are used to assess method accuracy in the matrix. The matrix spikes should show recoveries between 70-130%. For the results reported here the matrix spike for 04-10-03A,B was within the acceptable range. For the other three samples, 04-10-01A,B, 04-10-02A,B and 04-10-04, the amount of PFOA found in the sample greatly exceeded the spiking level and an accurate recovery could not be calculated.

4.5 Sample Related Comments

Each sample was extracted in duplicate and analyzed. Duplicate sample results are reported along with the sample results in Attachment B.

5 Data Summary

Please see Attachment B for a detailed listing of the analytical results. Results are reported in parts per billion (ng/mL) for the analyte, PFOA.


6 Data/Sample Retention

Samples are disposed of one month after the report is issued unless otherwise specified. All electronic data is archived on retrievable media and hard copy reports are stored in data folders maintained by Exygen. Hardcopy data is stored for a minimum of five years. The client will be notified 30 days prior to the disposal of hardcopy data.

7 Attachments

- 7.1 Attachment A: Chain of Custody
- 7.2 Attachment B: Analytical Results
- 7.3 Attachment C: Raw Analytical Data

8 Signatures



Karen Rishia, Principal Investigator

01/24/05

Date



John M. Flaherty, Vice President

1/24/05

Date

1/13/05

PFOA ANALYSIS

SAMPLE ID	LOCATION	
04-13-01	RPI Deionized Water	ND
04-13-02	161 SHEPHERD ROAD	ND
04-13-03	147 COONROCK RD (LOA1)	43
04-13-04	6 RUSSELL ROAD	2.2
04-13-05	BUILDING 1	0.56

4/13/05

FLUOROSILICONE EVALUATIONS FOR GASKO

DOW CORNING LS 5-8761 FLUOROSILICONE

04-13-06

20.09g LS 5-8761 Lot 000 2224489
20.18g 2-BUTANONE SIGMA BATCH 00952TC

04-13-07

20.71g LS 5-8761 Lot 000 2224489
20.85g 4-methyl-2-pentanone Batch 00955HC

BOTH Samples Prepared At ~ 10:30 A.M.

AFTER 2 hours, both solutions had partially solvated. stirring with a tongue depressor resulted in climbing and a thicker ball of solvated fluorosilicon on the stick

Summary of PFOA in Water Samples

Sample ID	Analyte Found ppb (ng/mL)	
	PFOA	
04-13-01	ND	} RPI deionized water
04-13-01*	ND	
04-13-02	ND	} 161 Shafte Rd Scottdale, GA
04-13-02*	ND	
04-13-03	4.20	} 147 Coon Brook Rd
04-13-03*	4.30	
04-13-04	2.28	} 6 Russell Rd
04-13-04*	2.21	
04-13-05	0.562	} Bldg #1 (via pond)
04-13-05*	0.516	

*Laboratory Duplicate

ND = Not Detected. Result is less than 0.0500 ng/mL.